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New Species of *Eleodes* from California and Nevada (Coleoptera: Tenebrionidae)

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Fieldwork during the last 10 years in California and adjacent parts of Nevada has led to the recognition of the two species described here.

Eleodes (*Metablapylis*) *insolitus*, NEW SPECIES

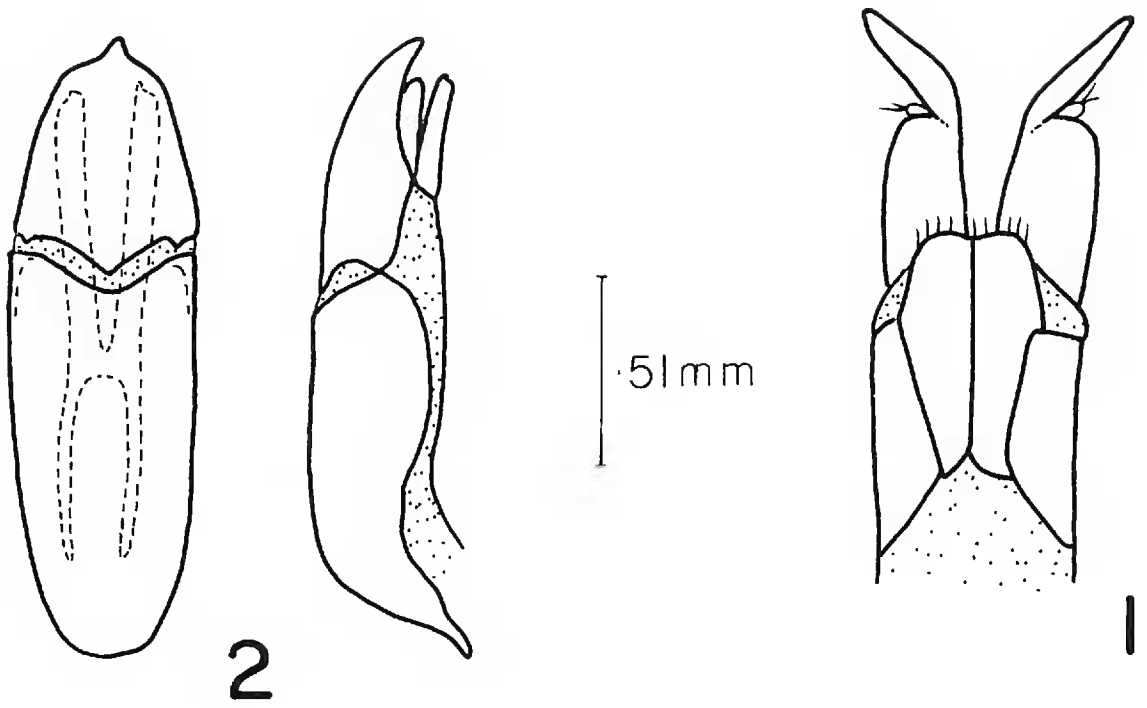
Elongate ovate to slender black beetles with the sutural edge of the elytra raised as a slight carina.

Female.—Head weakly convex between eyes; epistomal canthus slightly raised over antennae, less prominent than eyes; epistomal suture finely impressed, complete except for small median area; dorsum of cranium set with tubercles 1–2× eye facet diameter, separated by about 1–2 diameters centrally, becoming denser and finer posteriorly, slightly coarser anteriorly, sometimes with small, irregular bare patches centrally; tubercles bearing very short, fine, anteriorly inclined setae. Antennae gradually enlarged to apical segment, reaching slightly beyond pronotal base; segment length ratios approximately as follows: 3.2:1.5:5.5:3.1:2.4:2.4:2.5:2.5:2.5:2.4:2.8; segments 3–8 elongate, becoming trapezoidal distally; segments 9–10 subglobular; 11 asymmetrically tear drop-shaped. Mentum tuberculate, median lobe bluntly deltoid, much elevated above lateral lobes.

Pronotum 4/5 as long as wide, widest at about anterior 1/3; anterior border unmargined, nearly straight except near slightly produced acute anterior angles; lateral borders finely, obscurely margined, finely denticulate; evenly arcuate nearly to obtuse posterior angles, then very slightly everted; posterior border weakly bisinuate, narrowly margined; pronotal disk uniformly set with tubercles about 1–2.5× eye facet diameter, sometimes with narrow, bare, shallow median depression; tubercles bearing fine, backwardly inclined setae less than tubercle diameter in length. Hypomeron and prosternum sculptured as disk, but tubercles finer, near lateral carina sparser; setae directed dorsad. Prosternal process about twice as broad behind as between coxae, then attenuate to narrowly rounded, prominent apex.

Elytra elongate oval; widest at middle, disk somewhat flattened, with medial margins raised as carina in anterior 3/4; set with tubercles about 1–2.5× eye facet diameter near humeri and along lateral-most contour of elytron; tubercles gradually decreasing to about 0.5× eye facet diameter near suture and to about 1× eye facet diameter near epipleural carina. Epipleuron finely tuberculate, slightly narrowed just behind humerus, then subparallel nearly to apex, which is slightly expanded, producing weak caudal process.

Meso- and metasterna with setiferous tubercles about size of eye facets, separated by about 1–2 tubercle diameters. Abdominal sterna slightly convex in lateral silhouette; first sternite with tubercles about size of eye facets, separated by about



Figures 1, 2. Genitalia of *Eleodes insolitus*. 1. Apex of ovipositor, dorsal. 2. Aedeagus, dorsal and lateral.

2–4 tubercle diameters; tubercles becoming finer on sternites 2–4, obsolescent on sternite 5; attendant setae on sternite 5 about 2–3 times longer than on rest of body.

Femora set with flattened tubercles bearing short, appressed setae; anterior femur with dorsal margin abruptly narrowed just before apex. Tibiae set with short, sharp, semierect spines interspersed with finer, appressed setae; anterior tibia with outer margin keeled in basal half. Tibial spurs and tarsi similar in males and females; protarsus with basal segment produced ventrally with tuft of stiff setae interrupting plantar groove; tarsal claws about as long as basal metatarsal segment.

Ovipositor with coxite produced apically as long, sclerotized, spatulate process with gonostylus set dorsolaterally in notch at about middle (Fig. 1).

Male.—Slightly more slender than female; abdomen nearly flat in lateral silhouette. Aedeagus as in Figure 2.

Measurements.—Elytral length, 7.7–10.6 mm; greatest elytral width, 4.7–6.2 mm; medial pronotal length, 2.8–4.1 mm; greatest pronotal width, 3.2–4.7 mm.

Holotype female (California Academy of Sciences) and 6 ♀ paratypes from Nevada, Esmeralda County, Clayton Valley Sand Dunes, near Silver Peak, IX-17/18-1974, J-T. Doyen. Twelve ♀ and 14 ♂ paratypes, same data, F. G. Andrews and A. R. Hardy. Paratypes in Essig Museum of Entomology, University of California, Berkeley, and California Department of Food and Agriculture Collection, Sacramento.

Eleodes insolitus is superficially similar to *E. dissimilis* Blaisdell, but is distinguished by the tuberculate body (punctate in *dissimilis*) and the medial elytral carina (flat in *dissimilis*). The spatulate process of the coxite is longer than in any other described Eleodini. In this character *insolitus* is similar to *Embaphion* and *Neobaphion.* However, the coxite also bears a spatulate process in *Eleodes dissimilis* (Blaisdell, 1909, pl. 5), though it is shorter than in *Embaphion.* In several other features, such as the shape of the prosternal process and profemur, *insolitus*

resembles members of the subgenus *Metablapylis,* where it is tentatively placed. It differs from *Metablapylis* in its strongly tuberculate body. The spatulate coxites in *E. insolitus* superficially resemble the coxites of many Tentyriinae, and may be an adaptation for depositing eggs beneath the surface of sandy substrates.

It is likely that elongate coxites have been independently derived several times in Eleodini, for example in the subgenera, *Discogenia* and *Metablapylis* of *Eleodes* and again in *Embaphion* and *Neobaphion.* The relationship postulated by Blaisdell between the last two is supported by the presence of relatively large amounts of octanoic acid in their defensive secretions (Tschinkel, 1975). The composition of the secretions of *E.* (*Discogenia*) and species such as *E. insolitus* may clarify their relationships as well.

Eleodes insolitus is known only from the sand dunes in Clayton Valley, Nevada. A few individuals were taken from the sand surface at night, but most were excavated by Drs. Hardy and Andrews from kangaroo rat (*Dipodomys*) burrows on the flanks of the main dune mass.

Eleodes (*Tricheleodes*) *obesus*, New Species
(Fig. 3)

Brownish black to black pilose beetles with broadly ovate elytra.

Female.—Head very weakly convex between eyes; epistomal canthus slightly raised over antennae, slightly less prominent than eyes; epistomal suture faintly visible or usually obliterated; dorsum of cranium with small, flattened setigerous tubercles posteriorly, becoming tuberculopunctate or punctate or rugosely punctate anteriorly, tubercles about 1.5× eye facet diameter; punctures about 1–3 times eye facet diameter; setae black or dark brown, short and appressed posteriorly, becoming much coarser, longer and inclined on epistomum and usually near eyes. Antennae gradually enlarged to apical segment, reaching almost to pronotal base; segment length ratios approximately as follows: 3.0:1.4:5.6:2.9:2.8:2.4:2.4:2.0:2.0:1.8:2.3; segments 3–7 elongate, becoming trapezoidal distally; 8 broadly trapezoidal, 9–10 subglobular, 11 asymmetrically tear drop-shaped. Mentum punctate, median lobe bluntly deltoid, bearing long, coarse black setae laterally; maxillary base, mandibles and labrum all bearing spinose, black setae.

Pronotum about 1.25× broader than long, widest slightly before middle; anterior border nearly straight with slightly raised margin in lateral thirds; anterior angles slightly obtuse, rounded at apex; lateral borders evenly arcuate or slightly reflexed near posterior angles, irregularly crenulate or occasionally weakly carinate anteriorly, indicated by irregular tubercles or obsolete posteriorly; posterior angles obtuse, obsolete; posterior border nearly straight, finely margined. Disk centrally with very coarse, reticulate punctures, becoming rugosely punctate laterally and then tuberculate near margins; punctures and tubercles bearing short, semierect black setae; hypomeron with setigerous tubercles about 1–2× eye facet diameter, separated by about 2–3 tubercle diameters; sternum sculpted similarly, but setae much coarser, longer; prosternal process about 1.5 times broader behind than between coxae, then attenuate to a prominent, acutely rounded apex.

Elytra broadly ovate, widest at middle, evenly arcuate in lateral silhouette; disk muricately punctate or tuberculopunctate medially, becoming tuberculopunctate

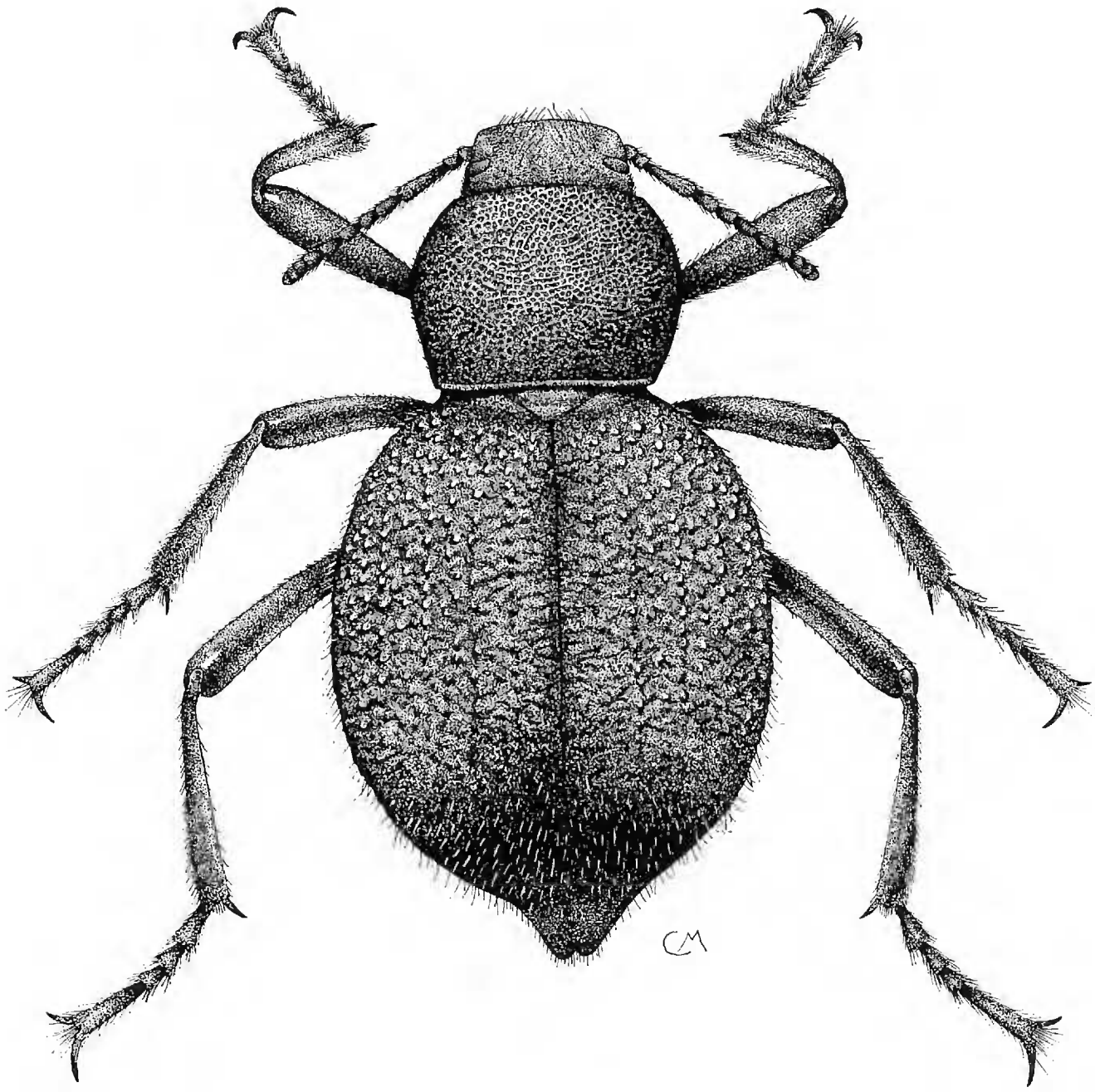
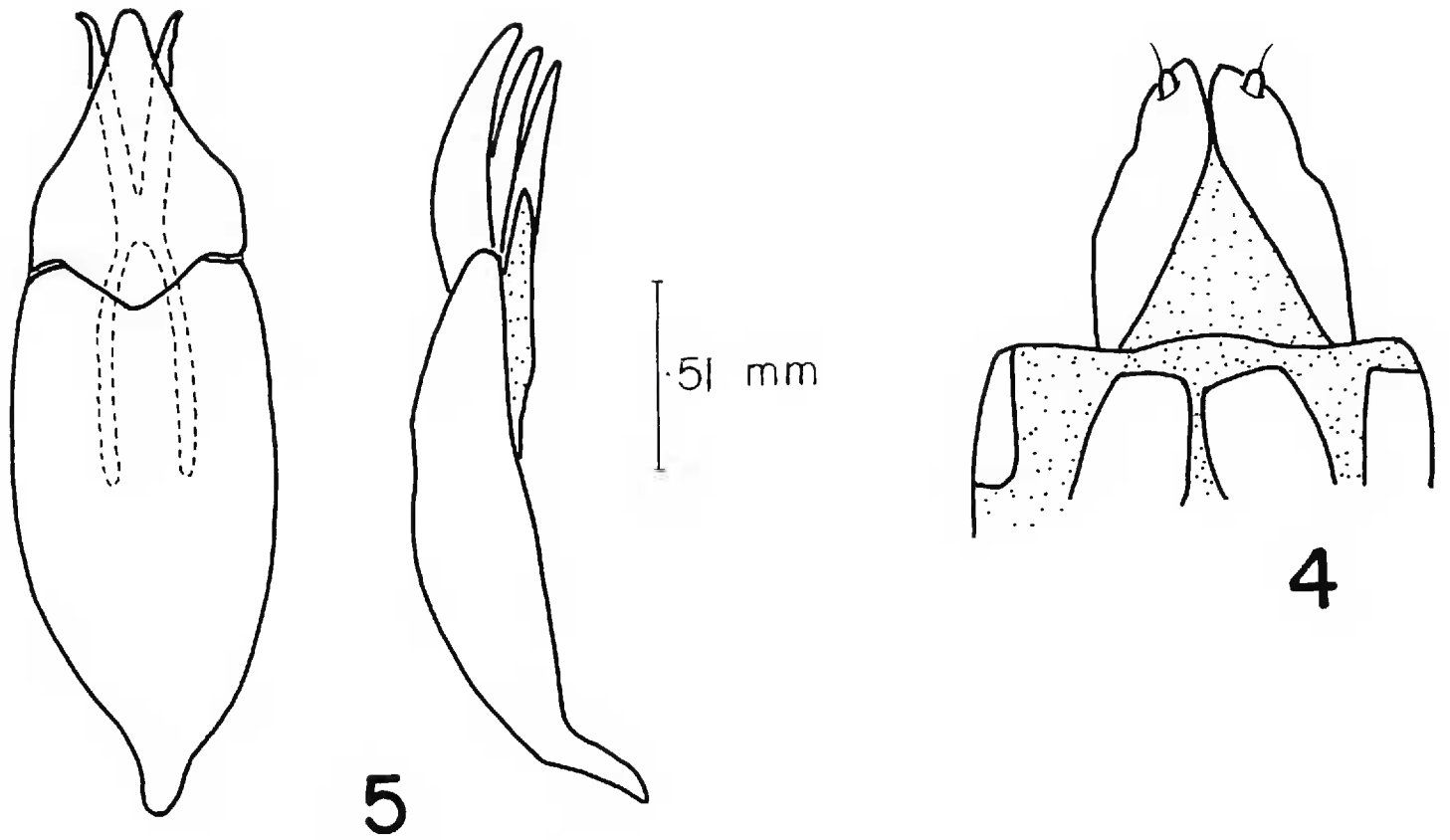


Figure 3. *Eleodes obesus,* female.

or tuberculate laterally; tubercles about 2–5× eye facets in diameter; coarser tubercles forming 8–12 irregular rows, less discernable laterally; large tubercles supertending erect setae about ¾ as long as basal metatarsomere; small tubercles with setae ½ that size. Epipleuron finely tuberculate, gradually narrowing almost to apex, then expanded as rounded, ventrally concave caudal process.

Meso- and metasterna and pleura muricately punctate to tuberculate, with short, fine appressed setae laterally, longer, semierect setae medially. Abdominal sterna slightly to moderately convex in lateral silhouette; sparsely muricately, setigerously punctate; setae short to very short, weakly inclined; 5th sternite becoming densely setose along hind margin.

Legs densely muricately and setigenously punctate; femora with setae short, appressed or slightly inclined; tibiae with fine setae on outer surface, mixed with shorter, coarser spines on medial surface; meso- and metatibiae sometimes with few longer, curved setae on posteromedial surface; anterior tibia outwardly keeled in basal ⅔; meso- and metatibia in basal ¼–⅕. Tibial spurs and tarsi similar in sexes; protarsus simple; tarsal claws almost as long as distal protarsomere.



Figures 4, 5. Genitalia of *Eleodes obesus.* 4. Apex of ovipositor, dorsal. 5. Aedeagus, dorsal and lateral.

Ovipositor with coxite weakly sclerotized, setose, with gonostylus set dorsolaterally near apex (Fig. 4).

Male.—Distinctly more slender than female; abdomen flat or slightly convex in lateral silhouette. Aedeagus as in Figure 5.

Measurements.—Elytral length: 9.0–12.4 mm; greatest elytral width, 5.7–8.7 mm; median pronotal length, 2.9–4.1 mm; greatest pronotal width, 3.7–5.5 mm.

Holotype female (California Academy of Sciencies) from California, Siskiyou County, Ash Creek Ranger Station, 9 mi E McCloud, 3500′, VI-10/12-1974, J. Doyen. Paratypes, same data, J. Chemsak, R. Coville, J. Doyen, D. Green (36 ♀♀, 27 ♂♂); same locality, VI-7/9-1974, J. Sorenson (1 ♀).

Additional material examined.—California, Lassen Co., Pine Creek, IV-21-1949 (1); Modoc Co., nr. Lost Lake, VI-14-34 (2); Shasta Co., Old Station, VI-15-41 (1); Oregon, Klamath Co., V-17-1913 (1).

Eleodes obesus is similar to *E. pilosus* Horn. In *obesus* the elytra are noticeably more inflated and the apices of the epipleura are expanded to produce slight caudae (subparallel to apex in *pilosus*). In *obesus* the pronotal setae are usually short and appressed, the longer elytral setae are about ¾ as long as the basal metatarsal segment. In *pilosus* the pronotal setae are erect; both pronotal and elytral setae are about 1–1.5× as long as the basal metatarsal segment. Specimens from Modoc County have the pronotal setae longer and erect, but have the inflated elytra and caudiform epipleura of *obesus.*

The vegetation at the type locality is coniferous forest on the south slope of Mount Shasta. The substrate is largely volcanic ash, producing the local edaphic aridity which probably allows the beetles to inhabit this region. Other species of *Tricheleodes* occur in more arid parts of the Great Basin to the east.

The individuals comprising the type series appeared suddenly during the second

week of June, suggesting a synchronized emergence. Adults held in rearing containers in the laboratory survived only about 30 days. This indicates a restricted period of adult activity compared to most *Eleodes,* which live many months or up to several years as adults.

Literature Cited

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